Chapter 5
Advanced Configuration

This chapter describes how to configure the advanced features of your NETGEAR ProSafe Wireless Access Point 802.11g WG302:

- **IP Settings**: Use the AP as a DHCP server for wireless clients.
- **Wireless Settings**: Set up AutoCell and configure advanced wireless LAN parameters.
- **Access Point Settings**: Enable wireless bridging and repeating.

These features can be found under the Advanced heading in the main menu.

Understanding Advanced IP Settings for Wireless Clients

The default advanced IP wireless settings usually work well. If you want the AP to act as a DHCP server gateway for wireless clients, use this feature. The AP can accept both static and DHCP clients.

Figure 5-1: Advanced IP Settings for Wireless Clients screen

Understanding Advanced Wireless Settings

The advanced wireless settings menu enables configuration of the following:

* AutoCell RF management

* Wi-Fi multimedia (WMM) setup

* Hotspot settings

* Advanced wireless parameters

These options are discussed below.

AutoCell RF Management

AutoCell provides advanced RF wireless management features that improve performance and enhance security.

Table 5-1.   What does AutoCell do?

Problem	AutoCell Settings
Erosion of privacy	Optional setting allows Wi-Fi network to be nearly undetectable by neighbors and hackers. **(Enhance RF Privacy -- Default: Disable)**
Diminishing performance from multiple APs installed in one area.	APs and clients load-balance traffic across under utilized APs. (**Auto RF Management -- Default: Enable**).
Complexity of installation	Customers can put APs anywhere they want and in any density APs. (**Auto RF Management -- Default: Enable**)
Increasing interference	Clients and APs avoid interference from neighbors and other unexpected sources. (**Auto RF Management -- Default: Enable**).

AutoCell's self-organizing micro cells provide an additional level of privacy for enterprises. AutoCell clients are highly-recommended for Enhanced RF Security.

Configuration

Figure 5-2: Advanced Wireless Settings screen AutoCell Setup options

There are two AutoCell configuration setting choices:

• Enable/disable Auto RF Management: Enabled by default

• Enable/disable Enhanced RF Security ('Stealth Mode'): Disabled by default

Auto RF Management

→ **Note:** Channel selection and power management is automatically adjusted by AutoCell when the Auto RF Management option is enabled.

In this mode, AutoCell APs and clients load-balance traffic across under utilized APs. This mode avoids interference from neighbors clients and APs and other unexpected sources.

Enhanced RF Security 'Stealth Mode'

→ **Note:** Broadcast Wireless Network Name (SSID) is automatically turned off when you select the AutoCell Enhanced RF Security option.

In this mode, AutoCell shrinks the size of coverage to the minimum to reach clients but also shrinks the size of the beacons that access points use to announce their presence. This mode makes an enterprise wireless LAN nearly invisible to users outside an office building.

AutoCell AP/Client Interaction

AutoCell's self-organizing micro cells provide performance benefits and an additional level of privacy for enterprises.

- **Automatic Transmit Power Control.** An AutoCell-enabled client's RF transmit power level is automatically coordinated with an AutoCell-enabled AP. This creates client micro-cells and reduces co-channel interference with other clients and APs on the same frequency and improves overall throughput and performance. (Requires: AutoCell-enabled AP)

- **Automatic Load-Balancing.** An AutoCell-enabled client will seek out and associate to the lightest loaded AutoCell-enabled AP available. (Requires: AutoCell-enabled AP)

- **Rapid Roaming.** An AutoCell-enabled client will accurately and rapidly detect movement as distinguished from RF anomalies such as arbitrary and momentary changes in the surrounding RF domain. When it detects true movement, the client immediately seeks the best available AP at the highest data rate possible instead of waiting for the data rate to decline. (Does not Require AutoCell-enabled APs)

Additional AutoCell View Management Options

Figure 5-3: AutoCell View wireless network

AutoCell View is an available management tool that provides sophisticated views of your wireless network and enables managing the wireless communications easily from a simple console.

Wi-Fi Multimedia (WMM) Setup

WMM is a subset of the 802.11e standard. WMM allows wireless traffic to have a range of priorities, depending on the kind of data. Time-dependent information, such as video or audio, will have a higher priority than normal traffic. For WMM to function correctly, wireless clients must also support WMM.

WMM Support: Select Yes or No as required on the Advanced Wireless Settings menu. The default is No.

Configuring Wireless LAN Parameters

The default advanced wireless LAN parameter settings usually work well. If you want the AP to operate in Super-G mode, use this feature.

Figure 5-4: Advanced Wireless Settings screen

The table below describes the advanced wireless parameters.

Table 5-1.   Advanced Wireless LAN Settings Fields

Field	Description
Enable SuperG Mode	Click Enable to enable SuperG Mode.
RTS Threshold	The packet size used to determine whether it should use the CSMA/CD (Carrier Sense Multiple Access with Collision Detection) or the CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) mechanism for packet transmission.
Fragmentation Length	This is the maximum packet size used for fragmentation. Packets larger than the size programmed in this field will be fragmented. The Fragment Threshold value must be larger than the RTS Threshold value.
Beacon Interval	Specifies the data beacon rate between 20 and 1004.
DTIM Interval	The Delivery Traffic Indication Message specifies the data beacon rate between 1 and 255.
Preamble Type	A long transmit preamble may provide a more reliable connection or slightly longer range. A short transmit preamble gives better performance. Long is the default
Antenna	Select the desired antenna for transmitting and receiving. Auto is the default.

Hotspot Settings

You can allow all HTTP (TCP, port 80) requests to be captured and re-directed to the URL you specify.
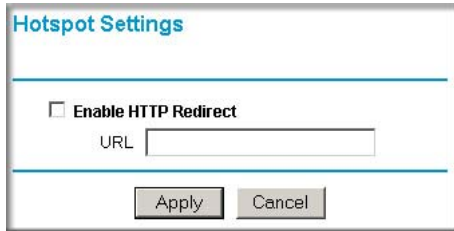
Hotspot Settings

☐ **Enable HTTP Redirect**

URL [ ]

[Apply] [Cancel]

Figure 5-5: Hotspot Settings screen

Enable HTTP Redirect: Enable this if you want all HTTP (TCP, port 80) requests to be captured and re-directed to the URL you specify.

URL: Enter the URL of the Web Server you wish HTTP requests to be redirected to.

Enabling Wireless Bridging and Repeating

The NETGEAR ProSafe Wireless Access Point 802.11g WG302 lets you build large bridged wireless networks.

Figure 5-6: Advanced Wireless Settings Access Point Mode settings

Examples of wireless bridged configurations are:

• Client Access Point to Access Point, the default
• Point-to-Point Bridge
• Multi-Point Bridge
• Repeater with Wireless Client Association

These features are discussed below.

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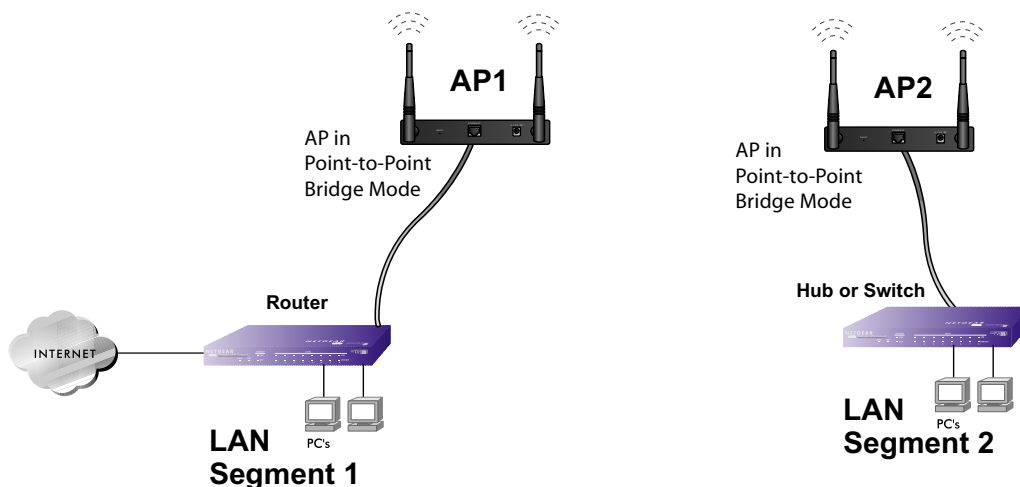# How to Configure a WG302 as a Point-to-Point Bridge

Figure 5-7: Point-to-Point Bridge

1. Configure the WG302 (AP1) on LAN Segment 1 in Point-to-Point Bridge mode.

2. Configure the WG302 (AP2) on LAN Segment 2 in Point-to-Point Bridge mode.
   AP1 must have AP2's MAC address in its Remote MAC Address field and AP2 must have AP1's MAC address in its Remote MAC Address field.

3. Configure and verify the following parameters for both access points:

   - Verify that the LAN network configuration of the WG302 Access Points both are configured to operate in the same LAN network address range as the LAN devices

   - Both use the same ESSID, Channel, authentication mode, if any, and security settings if security is in use.

4. Verify connectivity across the LAN 1 and LAN 2.

   - A computer on either LAN segment should be able to connect to the Internet or share files and printers of any other PCs or servers connected to LAN Segment 1 or LAN Segment 2.

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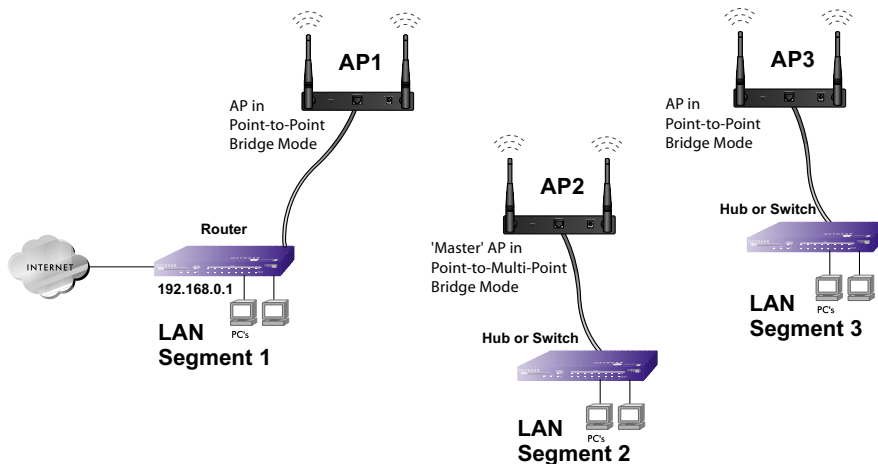# How to Configure Multi-Point Wireless Bridging

Figure 5-8: Multi-Point bridging

1. Configure the Operating Mode of the WG302 Access Points.

    – WG302 (AP1) on LAN Segment 1 in Point-to-Point Bridge mode with the Remote MAC Address of AP2.

    – Because it is in the central location, configure WG302 (AP2) on LAN Segment 2 in Point-to-Multi-Point Bridge mode. The MAC addresses of the adjacent APs are required in AP2.

    – Configure the WG302 (AP3) on LAN 3 in Point-to-Point Bridge mode with the Remote MAC Address of AP2.

2. Verify the following parameters for all access points:

    • Verify that the LAN network configuration the WG302 Access Points are configured to operate in the same LAN network address range as the LAN devices

    • Only one AP is configured in Point-to-Multi-Point Bridge mode, and all the others are in Point-to-Point Bridge mode.

    • All APs must be on the same LAN. That is, all the APs LAN IP address must be in the same network.

    • If using DHCP, all WG302 Access Points should be set to "Obtain an IP address automatically (DHCP Client)" in the IP Address Source portion of the Basic IP Settings menu.

- All WG302 Access Points use the same SSID, Channel, authentication mode, if any, and encryption in use.

- All Point-to-Point APs must have AP2's MAC address in its Remote AP MAC address field.

3. Verify connectivity across the LANs.

- A computer on any LAN segment should be able to connect to the Internet or share files and printers with any other PCs or servers connected to any of the three LAN segments.

- Wireless stations will not be able to connect to the WG302 Access Points in the illustration above. If you require wireless stations to access any lan segment, you can additional WG302 Access Points configured in Wireless Access Point mode to any LAN segment.

Note: You can extend this multi-point bridging by adding additional WG302s configured in Point-to-Point mode for each additional LAN segment. Furthermore, you can extend the range of the wireless network with NETGEAR wireless antenna accessories.
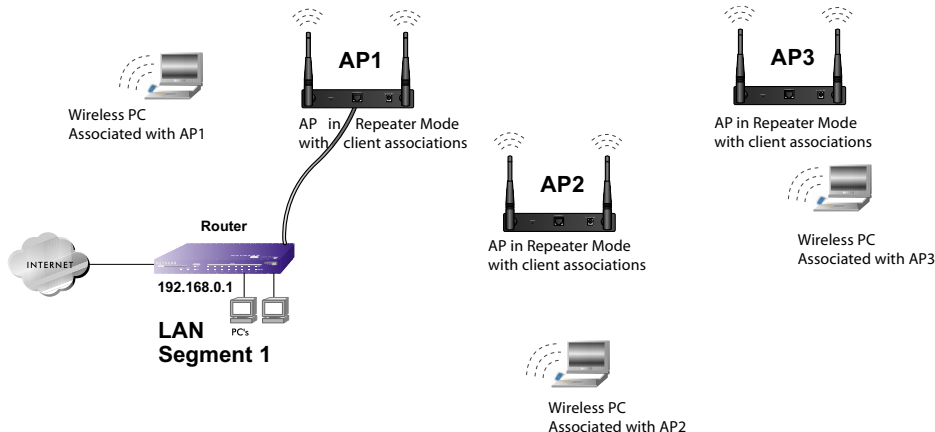
How to Configure Wireless Repeating

Figure 5-9: Multi-Point bridging

1. Configure the Operating Mode of the WG302 Access Points.

- WG302 (AP1) on LAN Segment 1 in Repeater mode with the Remote MAC Address of AP2.

- Configure WG302 (AP2) in Repeater mode with MAC addresses of AP1 and AP3.

  – Configure the WG302 (AP3) in Repeater mode with the Remote MAC Address of AP2.

2. Verify the following parameters for all access points:

  • Verify that the LAN network configuration the WG302 Access Points are configured to operate in the same LAN network address range as the LAN devices

  • All APs must be on the same LAN. That is, all the APs LAN IP address must be in the same network.

  • If using DHCP, all WG302 Access Points should be set to "Obtain an IP address automatically (DHCP Client)" in the IP Address Source portion of the Basic IP Settings menu.

  • All WG302 Access Points use the same SSID, Channel, authentication mode, if any, and encryption in use.

3. Verify connectivity across the LANs.

  • A computer on any LAN segment should be able to connect to the Internet or share files and printers with any other PCs or servers connected to any of the three WLAN segments.

Note: You can extend this repeating by adding up to 2 additional WG302s configured in repeater mode. However, since Repeater configurations communicate in half-duplex mode, the bandwidth decreases as you add Repeaters to the network. Also, you can extend the range of the wireless network with NETGEAR wireless antenna accessories.